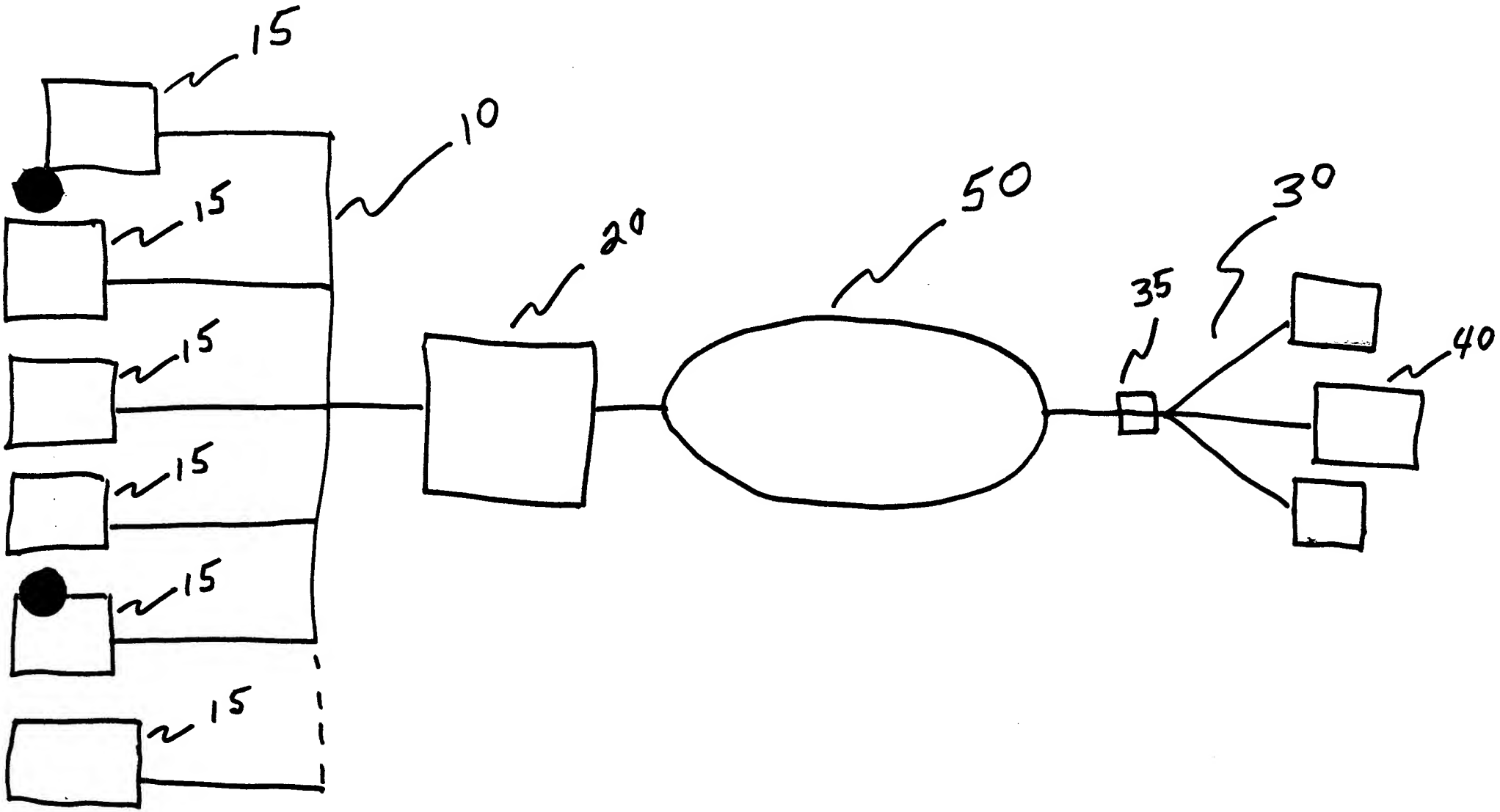

FIGURE 1

DECISION TREE FOR DATAGRAM FROM LAN

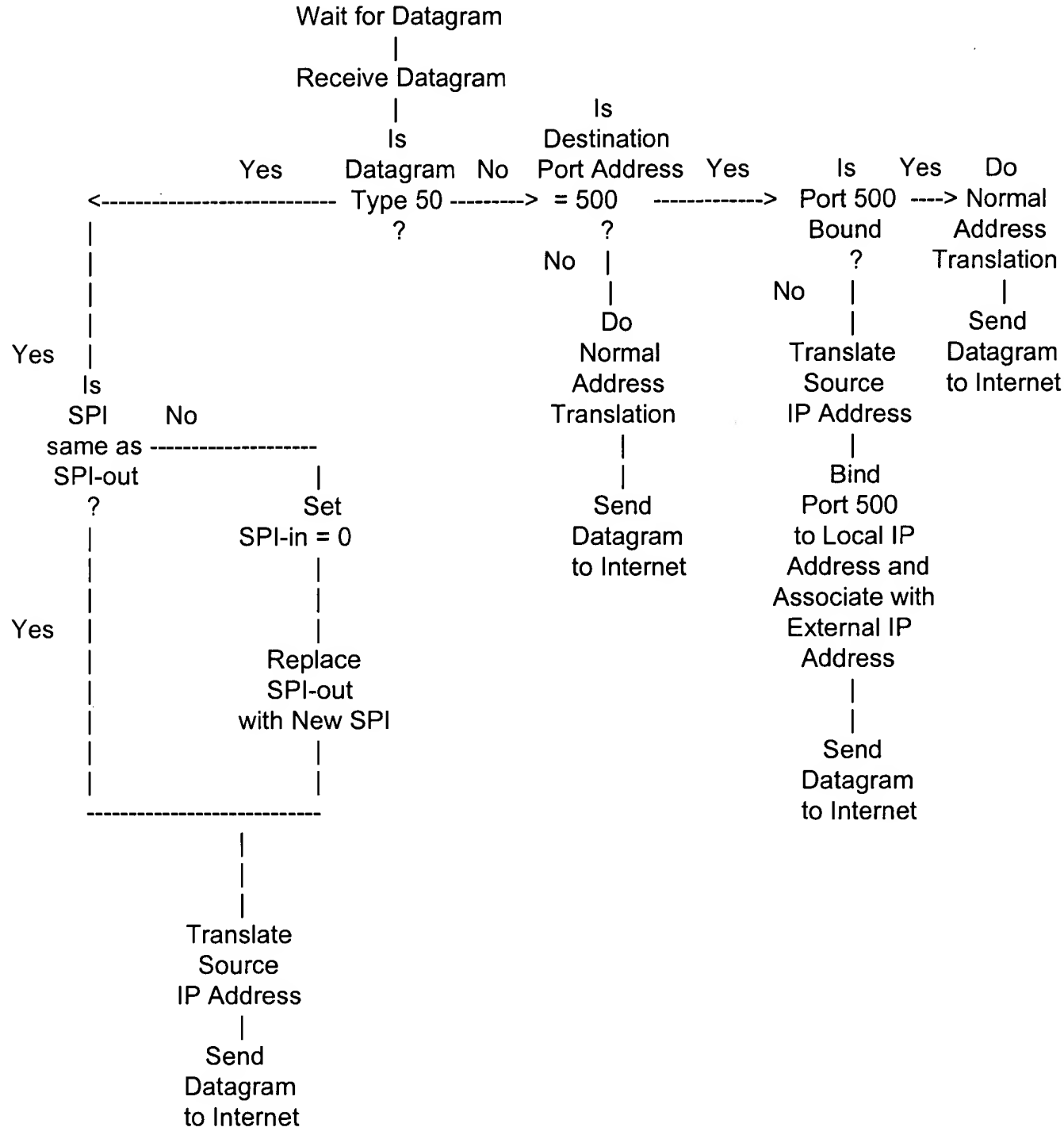

FIGURE 2

DECISION TREE FOR DATAGRAM FROM INTERNET

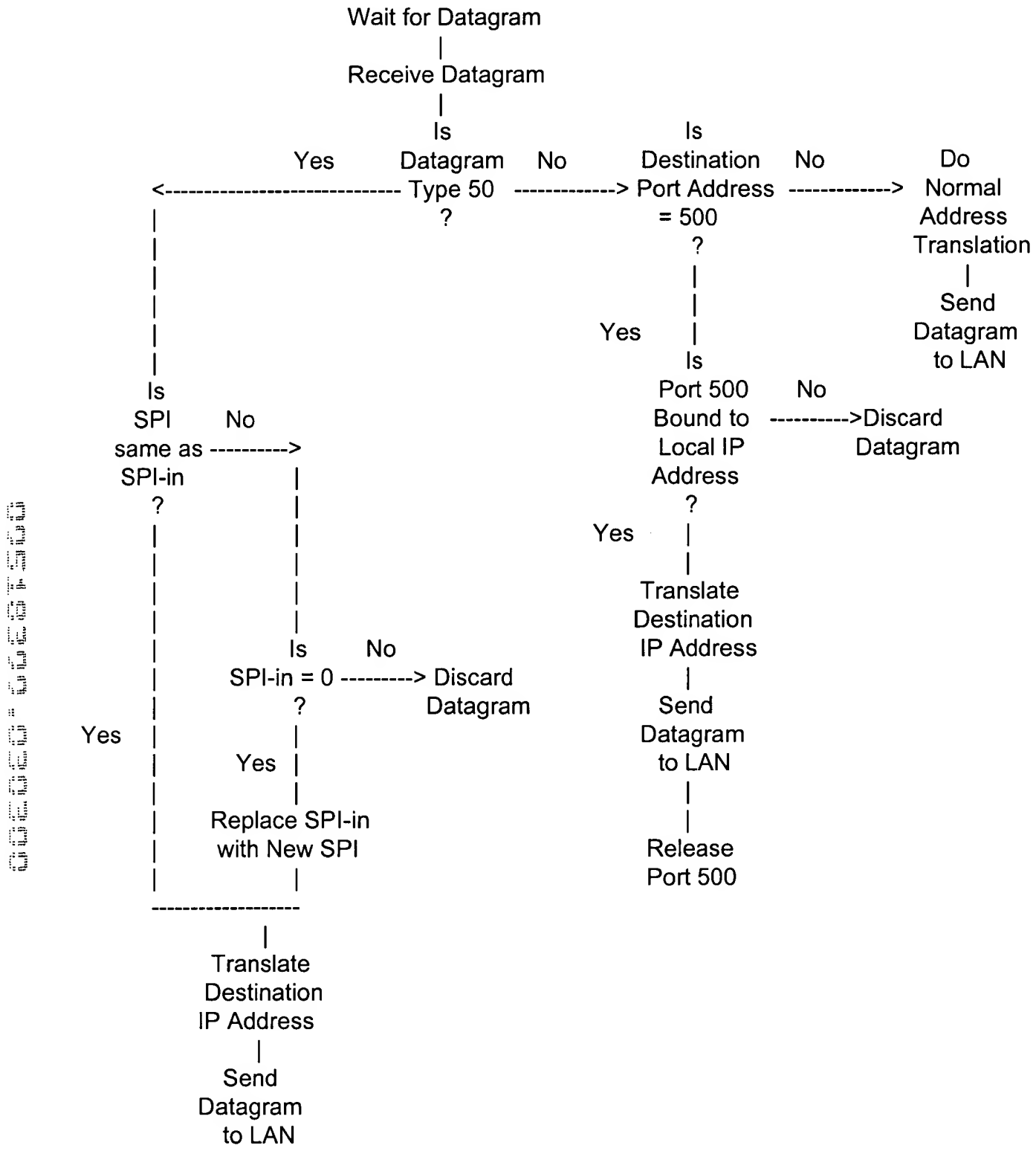

FIGURE 3

IP Addresses

	Local Computer	Gateway Internal	Gateway External	Target	
L-1	192.168.0.2	102.168.0.1	142.140.3.6	204.71.202.160	T-1
L-2	192.168.0.4	102.168.0.1	142.140.3.6	207.46.131.137	T-2
L-3	192.168.0.3	102.168.0.1	142.140.3.6	207.158.227.235	T-3

FIGURE 4

SPI table – 8 local computers communicating with 3 hosts

	TARGET	LOCAL IP		SPI-out	SPI-in
T-1	204.71.202.160	192.168.0.2	L-1	4859	9802
		192.168.0.5	L-x	52856	7000
		192.168.0.10	L-x	8565	8523
T-2	207.46.131.137	192.168.0.4	L-2	1353	6234
		192.168.0.7	L-x	2562	10125
		192.168.0.10	L-x	25763	12106
T-3	207.158.227.235	192.168.0.3	L-3	38935	7753
		192.168.0.8	L-x	9093	32828

FIGURE 5a

New session – new SPI-out – SPI-in set to 0

	TARGET	LOCAL IP		SPI-Out	SPI-In
T-1	204.71.202.160	192.168.0.2	L-1	14662	0
		192.168.0.5	L-x	52856	7000
		192.168.0.10	L-x	8565	8523
T-2	207.46.131.137	192.168.0.4	L-2	1353	4562
		192.168.0.7	L-x	2562	10125
		192.168.0.10	L-x	25763	12106
T-3	207.158.227.235	192.168.0.3	L-3	8773	20889
		192.168.0.8	L-x	9093	32828

FIGURE 5b

Reply packet received – New SPI-in received

	TARGET	LOCAL IP		SPI-OU	SPI-IN
T-1	207.200.0.2	192.168.0.2	L-1	14662	3288
		192.168.0.5	L-x	52856	7000
		192.168.0.10	L-x	8565	8523
T-2	206.23.5.120	192.168.0.4	L-2	1353	6234
		192.168.0.7	L-x	43966	17937
		192.168.0.10	L-x	25763	12106
T-3	207.198.75.3	192.168.0.3	L-3	8773	20889
		192.168.0.8	L-x	9093	32828

FIGURE 5c

SEQUENCE OF PACKETS THROUGH GATEWAY SINGLE LOCAL MACHINE -- SINGLE TARGET							
Path	Datagram Type	Source Address IP	Port	Destination Address IP	Port	SPI	Row
LAN - Gate	UDP	192.168.0.2	6404	204.71.202.160	80		1
Gate - Net	UDP	142.140.3.6	10425	204.71.202.160	80		2
Net - Gate	UDP	204.71.202.160	80	142.140.3.6	10425		3
Gate - LAN	UDP	204.71.202.160	80	192.168.0.2	6404		4
LAN - Gate	ISAKMP-1	192.168.0.2	500	204.71.202.160	500		5
Gate - Net	ISAKMP-1	142.140.3.6	500	204.71.202.160	500		6
Net - Gate	ISAKMP-2	204.71.202.160	500	142.140.3.6	500		7
Gate - LAN	ISAKMP-2	204.71.202.160	500	192.168.0.2	500		8
LAN - Gate	ISAKMP-3	192.168.0.2	500	204.71.202.160	500		9
Gate - Net	ISAKMP-3	142.140.3.6	500	204.71.202.160	500		10
Net - Gate	ISAKMP-4	204.71.202.160	500	142.140.3.6	500		11
Gate - LAN	ISAKMP-4	204.71.202.160	500	192.168.0.2	500		12
LAN - Gate	ISAKMP-5	192.168.0.2	500	204.71.202.160	500		13
Gate - Net	ISAKMP-5	142.140.3.6	500	204.71.202.160	500		14
Net - Gate	ISAKMP-6	204.71.202.160	500	142.140.3.6	500		15
Gate - LAN	ISAKMP-6	204.71.202.160	500	192.168.0.2	500		16
LAN - Gate	ESP (50)	192.168.0.2		204.71.202.160		4859	17
Gate - Net	ESP (50)	142.140.3.6		204.71.202.160		4859	18
Net - Gate	ESP (50)	204.71.202.160		142.140.3.6		9802	19
Gate - LAN	ESP (50)	204.71.202.160		192.168.0.2		9802	20
LAN - Gate	ESP (50)	192.168.0.2		204.71.202.160		4859	21
Gate - Net	ESP (50)	142.140.3.6		204.71.202.160		4859	22
Net - Gate	ESP (50)	204.71.202.160		142.140.3.6		9802	23
Gate - LAN	ESP (50)	204.71.202.160		192.168.0.2		9802	24
LAN - Gate	ESP (50)	192.168.0.2		204.71.202.160		14662	25
Gate - Net	ESP (50)	142.140.3.6		204.71.202.160		14662	26
Net - Gate	ESP (50)	204.71.202.160		142.140.3.6		3288	27
Gate - LAN	ESP (50)	204.71.202.160		192.168.0.2		3288	28
LAN - Gate	ESP (50)	192.168.0.2		204.71.202.160		14662	29
Gate - Net	ESP (50)	142.140.3.6		204.71.202.160		14662	30
Net - Gate	ESP (50)	204.71.202.160		142.140.3.6		3288	31
Gate - LAN	ESP (50)	204.71.202.160		192.168.0.2		3288	32

FIGURE 6

SEQUENCE OF PAC[redacted] THROUGH GATEWAY MULTIPLE LOCAL MAC[redacted]S -- MULTIPLE TARGETS								
Path	Packet Type	Source Address IP	Service	Destination Address IP	Service	SPI	Active Process	Row
LAN - Gate	UDP	192.168.0.2	6404	204.71.202.160	80		L-1 Out	1
Gate - Net	UDP	142.140.3.6	10425	204.71.202.160	80		T-1 In	2
LAN - Gate	UDP	192.168.0.4	4562	207.46.131.137	1353		L-2 Out	3
Gate - Net	UDP	142.140.3.6	37525	207.46.131.137	1353		T-2 In	4
Net - Gate	UDP	204.71.202.160	80	142.140.3.6	10425		T-1 Out	5
Gate - LAN	UDP	204.71.202.160	80	192.168.0.2	6404		L-1 In	6
Net - Gate	UDP	207.46.131.137	1353	142.140.3.6	37525		T-2 Out	7
Gate - LAN	UDP	207.46.131.137	1353	192.168.0.4	4562		L-2 In	8
LAN - Gate	ISAKMP-1	192.168.0.2	500	204.71.202.160	500		L-1 Out – Port 500 bound to 192.168.0.	9
Gate - Net	ISAKMP-1	142.140.3.6	500	204.71.202.160	500		T-1 In – Associated with 204.71.202.160	10
Net - Gate	ISAKMP-2	204.71.202.160	500	142.140.3.6	500		T-1 Out	11
Gate - LAN	ISAKMP-2	204.71.202.160	500	192.168.0.2	500		L-1 In – Port 500 released	12
LAN - Gate	ISAKMP-3	192.168.0.2	500	204.71.202.160	500		L-1 Out – Port 500 bound to 192.168.0.	13
Gate - Net	ISAKMP-3	142.140.3.6	500	204.71.202.160	500		T-1 In – Associated with 204.71.202.160	14
LAN - Gate	ISAKMP-1	192.168.0.3	500	207.158.227.235	500		L-3 Out	15
Gate - Net	ISAKMP-1	142.140.3.6	500	207.158.227.235	8773		T-3 In - Port 500 not available	16
Net - Gate	ISAKMP-4	204.71.202.160	500	142.140.3.6	500		T-1 Out	17
Gate - LAN	ISAKMP-4	204.71.202.160	500	192.168.0.2	500		L-1 In – Port 500 released	18
LAN - Gate	ISAKMP-1	192.168.0.3	500	207.158.227.235	500		L-3 Out	19
Gate - Net	ISAKMP-1	142.140.3.6	500	207.158.227.235	500		T-3 In - Port 500 bound to 192.168.0.3	20
LAN - Gate	ISAKMP-5	192.168.0.2	500	204.71.202.160	500		L-1 Out – Port 500 not available	21
Gate - Net	ISAKMP-5	142.140.3.6	500	204.71.202.160	9063		T-1 In – Source port address translated	22
Net - Gate	ISAKMP-2	207.158.227.235	500	142.140.3.6	500		T-3 Out	23
Gate - LAN	ISAKMP-2	207.158.227.235	500	192.168.0.3	500		L-3 In – Port 500 released	24
LAN - Gate	ISAKMP-5	192.168.0.2	500	204.71.202.160	500		L-1 Out – Port 500 bound to 192.168.0.	25
Gate - Net	ISAKMP-5	142.140.3.6	500	204.71.202.160	500		T-1 In – Associated with 204.71.202.160	26
							Time-out for T-1 Out--Port 500 released	27
LAN - Gate	ISAKMP-3	192.168.0.3	500	207.158.227.235	500		L-3 Out	28
Gate - Net	ISAKMP-3	142.140.6.3	500	207.158.227.235	500		T-3 In - Port 500 bound to 192.168.0.3	29
Net - Gate	ISAKMP-6	204.71.202.160	500	142.140.3.6	500		T-1 Out – Port 500 blocked	30
							T-1 Out – packet ignored	31
Net - Gate	ISAKMP-4	207.158.227.235	500	142.140.3.6	500		T-3 Out	32
Gate - LAN	ISAKMP-4	207.158.227.235	500	192.168.0.3	500		L-3 In – Port 500 released	33
LAN - Gate	ISAKMP-5	192.168.0.2	500	204.71.202.160	500		L-1 Out – Port 500 bound to 192.168.0.	34
Gate - Net	ISAKMP-5	142.140.3.6	500	204.71.202.160	500		T-1 In – Associated with 204.71.202.160	35
Net - Gate	ISAKMP-6	204.71.202.160	500	142.140.3.6	500		T-1 Out	36
Gate - LAN	ISAKMP-6	204.71.202.160	500	192.168.0.2	500		L-1 In – Port 500 released	37

Figure 7 (Page 1)

LAN - Gate	ESP (50)	192.168.0.2		204.71.202.160		4859	Out	38
Gate - Net	ESP (50)	142.140.3.6		204.71.202.160		4859	In	39
LAN - Gate	UDP	192.168.0.4	4562	207.46.131.137	1353		L-2 Out	40
Gate - Net	UDP	142.140.3.6	37525	207.46.131.137	1353		T-2 In	41
Net - Gate	ESP (50)	204.71.202.160		142.140.3.6		9802	T-1 Out	42
Gate - LAN	ESP (50)	204.71.202.160		192.168.0.2		9802	L-1 In	43
LAN - Gate	ISAKMP-5	192.168.0.3	500	207.158.227.235	500		L-3 Out - Port 500 bound to 192.168.0.3	44
Gate - Net	ISAKMP-5	142.140.6.3	500	207.158.227.235	500		T-3 In - Associated with 207.158.227.23	45
LAN - Gate	ESP (50)	192.168.0.2		204.71.202.160		4859	L-1 Out	46
Gate - Net	ESP (50)	142.140.3.6		204.71.202.160		4859	T-1 In	47
Net - Gate	ISAKMP-6	207.158.227.235	500	142.140.3.6	500		T-3 Out	48
Gate - LAN	ISAKMP-6	207.158.227.235	500	192.168.0.3	500		L-3 In – Port 500 released	49
Net - Gate	UDP	207.46.131.137	1353	142.140.3.6	37525		T-2 Out	50
Gate - LAN	UDP	207.46.131.137	1353	192.168.0.4	4562		L-2 In	51
LAN - Gate	ESP (50)	192.168.0.3		207.158.227.235		38935	L-3 Out	52
Gate - Net	ESP (50)	142.140.6.3		207.158.227.235		38935	T-3 In	53
Net - Gate	ESP (50)	204.71.202.160		142.140.3.6		9802	T-1 Out	54
Gate - LAN	ESP (50)	204.71.202.160		192.168.0.2		9802	L-1 In	55
Net - Gate	ESP (50)	207.158.227.235		142.140.3.6		7753	T-3 Out	56
Gate - LAN	ESP (50)	207.158.227.235		192.168.0.3		7753	L-3 In	57

Figure 7 (Page 2)

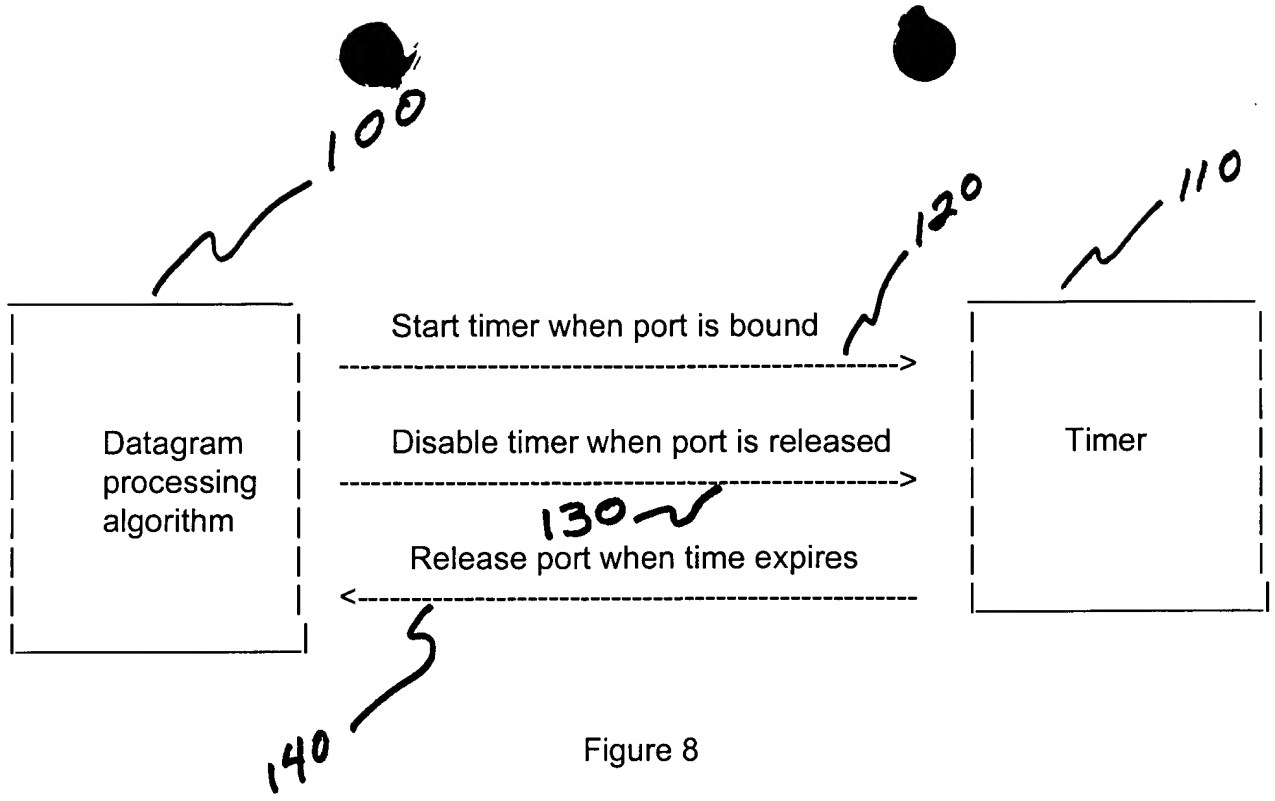
100
110
120
130
140
Datagram processing algorithm
Start timer when port is bound
Disable timer when port is released
Release port when time expires
Timer

Figure 8